PDF

Japanese Encephalitis

Rice field breeding mosquitoes (primarily the Culex tritaeniorhynchus group)

Q. How is Japanese encephalitis transmitted?
A. By rice field breeding mosquitoes (primarily the Culex tritaeniorhynchus group) that become infected with Japanese encephalitis virus (a flavivirus antigenically related to St. Louis encephalitis virus).

Q. How do people get Japanese encephalitis?
A. By the bite of mosquitoes infected with the Japanese encephalitis virus.

For more complete Internet Information:
http://www.cdc.gov/ncidod/dvbid/jencephalitis/index.htm

Q. What is the basic transmission cycle?
A. Mosquitoes become infected by feeding on domestic pigs and wild birds infected with the Japanese encephalitis virus. Infected mosquitoes then transmit the Japanese encephalitis virus to humans and animals during the feeding process. The Japanese encephalitis virus is amplified in the blood systems of domestic pigs and wild birds.

Q. Could you get the Japanese encephalitis from another person?
A. No, Japanese encephalitis virus is NOT transmitted from person-to-person. For example, you cannot get the virus from touching or kissing a person who has the disease, or from a health care worker who has treated someone with the disease.

Q. Could you get Japanese encephalitis from animals other than domestic pigs, or from insects other than mosquitoes?
A. No. Only domestic pigs and wild birds are carriers of the Japanese encephalitis virus.

Q. What are the symptoms of Japanese encephalitis?
A. Mild infections occur without apparent symptoms other than fever with headache. More severe infection is marked by quick onset, headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, occasional convulsions (especially in infants) and spastic (but rarely flaccid) paralysis.

Q. What is the incubation period for Japanese encephalitis?
A. Usually 5 to 15 days.

Q. What is the mortality rate of Japanese encephalitis?
A. Case-fatality rates range from 0.3% to 60%.

Q. How many cases of Japanese encephalitis occur in the world and the U.S.?

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A. Japanese encephalitis is the leading cause of viral encephalitis in Asia with 30-50,000 cases reported annually. Fewer than 1 case/year is reported in U.S. civilians and military personnel traveling to and living in Asia. Rare outbreaks in U.S. territories in Western Pacific have occurred.

Q. How is Japanese encephalitis treated?
A. There is no specific therapy. Intensive supportive therapy is indicated.

Q. Is the disease seasonal in its occurrence?
A. Seasonality of the illness varies by country (see table).

Q. Who is at risk for getting Japanese encephalitis?
A. Residents of rural areas in endemic locations, active duty military deployed to endemic areas, and expatriates who visit rural areas. Japanese encephalitis does not usually occur in urban areas (see table).

Q. Where is Japanese encephalitis endemic?

A.

Q. Where do Japanese encephalitis outbreaks occur?
A. Japanese encephalitis outbreaks are usually circumscribed and do not cover large areas. They usually do not last more than a couple of months, dying out after the majority of the pig amplifying hosts have become infected. Birds are the natural hosts for Japanese encephalitis. Epidemics occur when the virus is brought into the peridomestic environment by mosquito bridge vectors where there are pigs, which serve as amplification hosts, infecting more mosquitoes which then may infect humans. Countries which have had major epidemics in the past, but which have controlled the disease primarily by vaccination, include China, Korea, Japan, Taiwan and Thailand. Other countries that still have periodic epidemics include Viet Nam, Cambodia, Myanmar, India, Nepal, and Malaysia.

Q. Who should be vaccinated against Japanese encephalitis?

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A. According to the Advisory Committee on Immunization Practices (ACIP) (Centers for Disease Control and Prevention. Inactivated Japanese Encephalitis Virus Vaccine Recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR. Jan 8, 1993;42:11): http://www.cdc.gov/mmwr/preview/mmwrhtml/00020599.htm

U.S. Expatriates: Japanese encephalitis vaccine is recommended for persons who plan to reside in areas where Japanese encephalitis is endemic or epidemic (residence during a transmission season). Risk for acquiring Japanese encephalitis is highly variable within the endemic regions (see table; see map above). The incidence of Japanese encephalitis in the location of intended residence, the conditions of housing, nature of activities, and the possibility of unexpected travel to high-risk areas are factors that should be considered in the decision to seek vaccination.

Travelers: Japanese encephalitis vaccine is NOT recommended for all travelers to Asia. In general, vaccine should be offered to persons spending a month or longer in endemic areas during the trans-mission season, especially if travel will include rural areas. Under specific circumstances, vaccine should be considered for persons spending <30 days in endemic areas, e.g., travelers to areas experiencing epidemic transmission and persons whose activities, such as extensive outdoor activities in rural areas, place them at high risk for exposure. In all instances, travelers should be advised to take personal precautions; e.g., to reduce exposure to mosquito bites. The decision to use Japanese encephalitis vaccine should balance the risks for exposure to the virus (see table; see map) and for developing illness, the availability and acceptability of repellents and other alternative protective measures, and the side effects of vaccination. Risk assessments should be interpreted cautiously (see table; see map) since risk can vary within areas and from year to year and available data are incomplete. Estimates suggest that risk of Japanese encephalitis in highly endemic areas during the transmission season can reach 1 per 5,000 per month of exposure; risk for most short-term travelers may be 1 per million. Although Japanese encephalitis vaccine is reactogenic, rates of serious allergic reactions (generalized urticaria or angioedema) are low (1 to 104 per 10,000). Advanced age may be a risk factor for developing symptomatic illness after infection. Japanese encephalitis acquired during pregnancy carries the potential for intrauterine infection and fetal death. These special factors should be considered when advising elderly persons and pregnant women who plan visits to areas where Japanese encephalitis is endemic.

Q. Where can I get more information on Japanese encephalitis?
A. See the CDC Japanese Encephalitis Home Page (http://www.cdc.gov/ncidod/dvbid/jencephalitis/index.htm) and CDC Health Information for Travelers to Southeast Asia (http://www.cdc.gov/travel/seasia.htm).

For more information, visit www.cdc.gov/ncidod/dvbid/jencephalitis, or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (español), or (866) 874-2646 (TTY).

Table

TABLE 1. Risk of Japanese encephalitis by country, region, and season

Country	Affected areas/ jurisdictions	Transmission season	Comments
Bangladesh	Few data, probably widespread	Possibly July–December as in northern India	Outbreak reported from Tangail district
Bhutan	No data	No data	Not applicable
Brunei	Presumed to be sporadic — endemic as in Malaysia	Presumed year-round transmission	
Burma	Presumed to be endemic — hyperendemic countrywide	Presumed to be May–October	Repeated outbreaks in Shan State in Chiang Mai Valley
Cambodia	Presumed to be endemic — hyperendemic countrywide	Presumed to be May–October	Refugee camp cases reported from Thai border
Hong Kong	Rare cases in new territories	April–October	Vaccine not routinely recommended
India	Reported cases from all states except Arunachal, Dadra, Daman, Diu, Gujarat, Himachal, Jammu, Kashmir,Kerala, Lakshadweep, Meghalaya, Nagar Haveli, Orissa, Punjab, Rajasthan and Sikkim	South India: May–October in Goa October–January in Tamil Nadu August–December in Karnataka; second peak (April–June in Mandya district) Andrha Pradesh: September–December North India: July–December	Outbreaks in West Bengal, Bihar, Karnataka, Tamil Nadu, Andrha Pradesh, Assam, Uttar Pradesh, Manipure and Goa Urban cases reported, e.g., Lucknow
Indonesia	Kalimantan, Java, Bali, Lombok, Nusa Tenggara, Sulawesi, Mollucas, and Irian Java	Probably year-round risk; varies by island; peak risks associated with rainfall, rice cultivation and presence of pigs; November–March peak period of risk; June–July in some years	Human cases recognized on Bali and Java only
Japan*	Rare-sporadic cases on all islands, except Hokkaido	June–September except Ryukyu islands (Okinawa) April–October	Vaccine not routinely recommended for travel to Tokyo and other major cities. Enzootic transmission without human cases observed on Hokkaido
Korea	No data from North Korea; South Korea sporadic — endemic with occasional outbreaks	July–October	Last major outbreaks in 1982–1983
Laos	Presumed to be endemic–hyperendemic country wide	Presumed to be May–October	No data available
Malaysia	Sporadic–endemic in all states of Peninsula, Sarawak, and probably Sabah	No seasonal pattern; year-round transmission	Most cases from Penang, Perak, Selangor, Johore, and Sarawak

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